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CICADAS COLLECTED IN THE CAYMAN ISLANDS BY THE OXFORD UNIVERSITY BIOLOGICAL EXPEDITION OF 1938

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Through the courtesy of the Oxford University Biological Expedition to the Cayman Islands, 1938, I have been able to examine 92 cicadas collected on the three Cayman Islands, south of Cuba by C. Bernard Lewis and Mr. G. H. Thompson from April 26 to August 23, 1938, and Mr. Lewis has furnished many field notes.

In the JOURNAL, NEW YORK ENTOMOLOGICAL SOCIETY, March, 1930, p. 61, the writer described and figured *Diceroprocta cleavesi* from a single male collected on Grand Cayman, April 17, 1929, by Howard H. Cleaves of Staten Island. In 1930 and 1931 twenty-eight additional specimens were received from Grand Cayman, and the female of *cleavesi* was described in the JOURNAL, NEW YORK ENTOMOLOGICAL SOCIETY, June, 1932, p. 246.

With the aid of the 92 specimens collected in 1938 from all three of the islands, it is found that each of them has an endemic form separable from the others by a combination of characters. They are naturally closely related. They are also related, but separable from *Diceroprocta biconica* Walker, described from Cuba in 1850, and from *Diceroprocta bonhotei* Distant, described from the Bahamas in 1901. The chief difficulty arises in separating the females from Grand Cayman and Little Cayman, but it can be done, usually on color differences.

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It is of course important that more collecting be done on the Cayman islands, as additional specimens from different broods found in future years may modify the conclusions here expressed.

In a recent communication, Mr. Lewis states that the two cicadas in the Distant Collection, British Museum, referred to in the original description of *Diceroprocta cleavesi*, 1930, probably came from Cayman Brac, as a label on the male determined by Distant as *biconica* Walker, gives that island as locality. In *Genera Insectorum*, Plate 4, Figure 24 there is shown a male with expanse of wings of 85 millimeters. All of the cicadas from the three Cayman Islands expanding 85 millimeters, have the front wing noticeably narrower than in figure 24, namely 12 millimeters instead of 14.

Grand Cayman

Diceroprocta cleavesi Davis

As already noted *cleavesi* was described from this island in 1930 and further mentioned in 1932. We quote from Mr. Lewis' field notes of 1938: "The first cicada to be taken on the island was secured in Georgetown on April 26, on which day several others were heard. No large emergence was noticed at any time during our stay from April to September. The specimens were all taken on the north side of the island or along the west coast and as I recall, none were seen or heard at the east end or along the south coast. The insects became fairly numerous on the bluff behind the town of North Side about the middle of July; previous to that time few individuals had been noticed. Many of the specimens taken at West Bay came to the light traps."

Thirteen males and 12 females were collected on the island in 1938, the first, a male on the 26 of April, and the last, also a male, on the 23 of August.

In *cleavesi* the males have the base, sides, and extremity of the abdomen pruinose, leaving centrally an ovoid brown colored area. The females lack this ovoid area, but have the abdomen edged with white, leaving a very much broader, brown area than in the males and of a different shape. In the original description of *cleavesi* the deep orange color found at the base of the

wings was noted, instead of the greenish color as in *bonhotei* and *biconica*. Most of the 1938 specimens are orange at or near the base of all of the wings; others have the costal margin of the fore wings green, paler at the base. Several of these are teneral specimens. On this island, judging from the material at hand, the males and females differ more from each other in color pattern than on the two other islands. On the pronotum of *cleavesi* there is a noticeable black spot each side of the green brown or orange collar. The wish-bone shaped uncus, when exposed and viewed from the rear, is seen to be black or nearly so, and much darker than in the males from the two other islands.

Little Cayman

Diceroprocta caymanensis Davis

We quote from Mr. Lewis' field notes: "On June 6, 1938, the form appearing on this island was found in great numbers in a very small area about a half mile inland from the extreme east end of the island. A few plantations were kept in this region but no one lived there. The swarm was located on the edge of a freshly burned patch. At ten o'clock the trees for about fifty square yards were filled with them and the situation reminded me of the swarms of Brood X of *Magicicada septendecim* which I witnessed in Baltimore, Maryland, in 1936. It was difficult for our party to converse, the males produced such a din. The species was to be found in limited numbers all over the eastern part of the island but no where else was a swarm discovered. A few scattered individuals were heard in the western part of the island but they were rare. The males of this form have a white transverse band, dorsally, at the base of the abdomen which is lacking in the female." Though careful search was made by Mr. Lewis and Mr. Thompson, they were unable to discover any nymphal cases even in that part of the island occupied by the swarm.

In the species occurring on Little Cayman, the male, in coloring approaches more closely *biconica* and *obscurior* of Cuba, than it does the males of the two other islands.

Diceroprocta caymanensis new species (Plate I, Figs. 5, 6)

Type male and allotype female, from Little Cayman Island, 7 June, 1938 (C. B. Lewis and G. H. Thompson). To be placed in the British Museum.

Resembles in size and general appearance the darker colored *D. obscurior* of Cuba, but the front of the head is more prominent. In form of head and general color it resembles more nearly the larger *D. biconica*, also of Cuba, but differs in pruinose pattern. (See descriptions and figures, JOURNAL, NEW YORK ENTOMOLOGICAL SOCIETY, June, 1935.)

Eyes prominent and not quite as broad across the head as across the collar. Opercula triangular, nearly reaching the fourth abdominal segment, with sides slightly converging near the obtusely pointed extremities. In some of the paratypes the outer sides of the opercula are more nearly parallel to each other. Terminal dorsal spine of the last abdominal segment of the female short and with a slight upward bend. Head and pronotum brown, variegated with black as in *cleavesii* and *ovata*; collar green or greenish and usually without the black spot each side, noticeable in most specimens of *cleavesii*. The four obconical spots reaching backward from the front margin of the mesonotum strongly marked. Cruciform elevation and hind margin greenish. Tymbal covers generally paler than the central dorsal area of the abdomen, and connected in the male by a pruinose area containing two prominent white spots. Abdominal segments with hind margins greenish, and a dorsal blackish stripe about 4 millimeters broad (sometimes faintly represented) with the sides nearly parallel. Each segment near the central part of the abdomen, has, at the sides, a dark spot sometimes but faintly represented. The dorsum of segment 8 almost entirely pruinose in male, reduced in the females to two prominent white dots. The wish-bone shaped uncus is pale and not black as in *cleavesii*. Beneath pale, the opercula straw color; abdomen strongly pruinose at sides, leaving a broad light-brown central stripe; valve pale brown. Fore wings with the costal margin green to end of radial area, darker beyond; first and second cross veins infuscated; venation pale at base and darker about the marginal areas. Greenish at base of all of the wings, sometimes faintly orange, with the anal membranes gray and much paler than in *obscurior* of Cuba.

Measurements in Millimeters

	Male Type	Female Allotype
Length of body	30	28
Width of head across eyes	12	12
Expanse of fore wings	94	93
Greatest width of fore wing	13	12.5
Greatest length of operculum	8	

In addition to the type and allotype 13 males and 19 females were collected on Little Cayman from 29 May to 7 June, 1938. The 12 in alcohol have lost much of their green color, and are browner than those not so treated.

Cayman Brac

Diceroprocta ovata Davis

We quote from Mr. Lewis' field notes: "Cicadas seemed to be generally distributed over the island but were most numerous on the bluff at the east end of the narrow land mass. Here they were emerging in large numbers toward the end of May. Nymphal cases were commonly found clinging to the trees and nymphs were always to be found on the roots of any plant that might be pulled up for examination. The natives complained of much damage done in this region by these insects, especially to the Cassava. Males and females were equally common, but owing to the greater alertness of the males we seem to have more females. These insects had to be caught by hand and since the footing in this region is particularly bad this was not an easy task and the individuals were often disturbed before they could be reached. Both sexes show wide lateral white areas along the abdomen, which in the males meet anteriorly."

It is of much interest that while Cayman Brac is less than six miles east of Little Cayman, that the cicadas should be so differently marked from those on that island. Neither sex is marked as in *caymanensis*, nor the allied forms from Cuba, as far as at present known.

Diceroprocta ovata new species (Plate I, Figs. 7, 8)

Type male, east end of Cayman Brac, Spot Bay, 24 May, 1938, and Allotype female from same locality, 25 May, 1938 (C. B. Lewis and G. H. Thompson). To be placed in the British Museum.

This species is like *D. cleavesi* and *D. caymanensis* in structure characters, but differs from each in quite obvious and important color characters. From both of them it differs in having the sides of the abdomen in both sexes heavily and widely pruinose, leaving a large, oval, chocolate colored central area. In *cleavesi*, from Grand Cayman, only the male is thus colored, while in *caymanensis* from Little Cayman, neither sex has the broad pruinose areas. The anal membranes at the base of the hind wings are pure white in *ovata*; in the other two forms they are gray. In *ovata* the sides of the pronotum are often pruinose close to the eyes, which is not the case in the other forms. The black spot each side near the anterior angles of the greenish collar is small and sometimes absent. It resembles *caymanensis* in not having individuals with the venation noticeably orange as in many specimens of *cleavesi*. The wish-bone shaped uncus is pale as in *caymanensis*, and not black, as in *cleavesi*.

Measurements in Millimeters

	Male Type	Female Allotype
Length of body	31	29
Width of head across eyes	12	11.5
Expanse of fore wings	94	95
Greatest width of fore wing	13	13
Greatest length of operculum	9	

In addition to the type and allotype 14 males and 17 females were collected on Cayman Brae by Mr. Lewis and Mr. Thompson from 18 to 28 May, 1938. They were found both at the east and west ends of the island and at Stakes Bay on the north coast a male and a female came to the light-trap.

PLATE I

- Figure 1. *Diceroprocta cleavesi* Davis, 1930. Type.
 Figure 2. *Diceroprocta cleavesi* Davis, Underside of Type.
 Figure 3. *Diceroprocta cleavesi* Davis, Male, Grand Cayman.
 Figure 4. *Diceroprocta cleavesi* Davis, Female, Grand Cayman.
 Figure 5. *Diceroprocta caymanensis*, Type. Little Cayman.
 Figure 6. *Diceroprocta caymanensis*, Allotype. Little Cayman.
 Figure 7. *Diceroprocta ovata*, Type. Cayman Brae.
 Figure 8. *Diceroprocta ovata*, Allotype. Cayman Brae.